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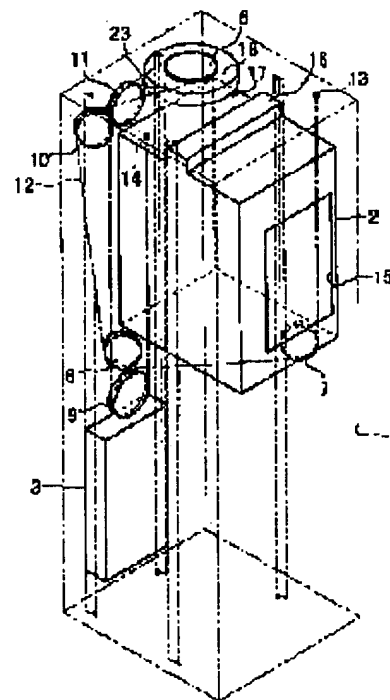
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(54) ELEVATOR DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an elevator with a winding machine built in a hoistway, and capable of being installed in a hoistway with a height matching a story height of the uppermost floor.

SOLUTION: Inversion pulleys 10, 11 changing the stretched directions of a main rope 12 close to a car 2 and close to a balance weight 3 from vertical direction to horizontal direction are provided in a gap between the edge of the car 2 and an internal wall of a hoistway 1. A winding machine 18 having a drive sheave 6 pivotally supported through a vertical shaft is provided at the top end of the hoistway 1, and is placed such that the lower end of the winding machine 18 is higher than the lower end of inversion pulleys 10, 11. With this constitution, the winding machine 18 is installed in the hoistway 1 corresponding to a story height of the uppermost floor of a building, the main rope 12 is stretched, an elevator is provided in the hoistway 1 corresponding to the story height of the upper most floor, and a construction cost required for an installation space is reduced.



LEGAL STATUS

[Date of request for examination]

* NOTICES *

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- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the elevator equipment with which the loop wheel machine which drives a cage and the skyline which hung and connected ***** was installed in the hoistway.

[0002]

[Description of the Prior Art] Drawing 18 and drawing 19 are drawings showing the conventional elevator equipment shown in JP,10-139321,A, and the perspective view and drawing 19 which show drawing 18 notionally are the important section crossing top view of drawing 18. In drawing, the cage with which 1 goes up and down a hoistway and 2 goes up and down the predetermined path of a hoistway 1, and 3 are arranged by the member 5 for support which has been arranged at the 1 side in the horizontal plane in a hoistway 1 and which it hangs, and ***** and 4 are loop wheel machines, and was prepared in the hoistway 1 upper part on the head-lining inferior surface of tongue, and the drive sheave 6 *****(ed) through the vertical-axis line is formed.

[0003] The first block of a cage by which 7 was prepared in the 1 side of the lower part of a cage 2, the second block of a cage by which 8 was prepared in the side besides the lower part of a cage 2, The cage side turn block which 9 hung and was formed in the upper part of ***** 3 and which hung, and a ***** block and 10 were pivoted in the upper part of a hoistway 1 through the horizontal-axis line, and has been arranged in the location corresponding to second block of cage 8, 11 is pivoted in the upper part of a hoistway 1 through a horizontal-axis line, is hung, has been arranged in the location corresponding to ***** block 9, is hung, and is a ***** side turn block. in addition, the cage side turn block 10 -- it hung and some of both the ***** side turn blocks 11 have lapped with the cage 2 in level plane of projection.

[0004] 12 is connected with the upper part of a hoistway 1 by the first rope stops 13 which are skylines and by which the end has been arranged at head lining of a hoistway 1 corresponding to the first block 7 of a cage, and descends by them. It is wrapped around the first block 7 of a cage, and the second block 8 of a cage, go up, and it is wrapped around the cage side turn block 10, and are stretched horizontally, and it is wrapped around the drive sheave 6, hang, and it is wrapped around the ***** side turn block 11. It descends, and it hangs, and it is wrapped around the ***** block 9, goes up, and the other end is connected with the upper part of a hoistway 1 by the second rope stops 14 which hung and have been arranged at head lining of a hoistway 1 corresponding to the ***** block 9.

[0005] It is constituted as mentioned above, a loop wheel machine 4 is energized, the drive sheave 6 rotates, through a skyline 12, conventional elevator equipment reaches cage 2, and is hung, and ***** 3 goes up and down each other to an opposite direction. Moreover, a loop wheel machine 4 is arranged in the upper part in a hoistway 1, the machine room prepared in independent is excluded, and the tooth space for elevator equipments in a building is reduced.

[0006]

[Problem(s) to be Solved by the Invention] In the above conventional elevator equipments, a loop wheel machine 4 is arranged by the member 5 for support prepared in the hoistway 1 upper part on the head-lining inferior surface of tongue of a hoistway 1, and a skyline 12 passes through the center-section upper part of a cage 2, and is stretched. For this reason, it was necessary to make the head-lining inferior surface of tongue of a hoistway 1 higher than the floor height of the highest floor in a building, and there was usually a trouble that building expenses increased for installation of elevator equipment.

[0007] This invention aims at obtaining the elevator equipment which is made in order to cancel this trouble, contains a loop wheel machine in a hoistway, and can be installed in the hoistway of the height corresponding to the floor height of the highest floor in a building.

[0008]

[Means for Solving the Problem] In the elevator equipment concerning this invention The cage which an entrance is established in the side face by the side of one, and goes up and down the predetermined path of a hoistway, And hang, and ***** is alike, respectively, and it is corresponded and prepared. it has been arranged in the wall of a hoistway, and the opening between cages -- it hangs and pivots in ***** and the upper limit section of a hoistway through a horizontal-axis line -- having -- a cage -- The turn block arranged in the wall of a hoistway, and the opening between cages in level plane of projection, The skyline by which the side else hung the cage, the lifting and holding of the ***** were carried out, and it has been arranged in a hoistway, and was wrapped around the turn block, and the 1 side converted horizontally and was stretched a cage slippage side and from the vertical [hang and] by the side of ***** approach, While the upper limit section of a hoistway is equipped and a lower limit is arranged rather than the lower limit of a turn block in an upper part location, the loop wheel machine with which the mutual skyline of a turn block was wrapped around the drive sheave ****(ed) through the vertical-axis line is formed.

[0009] Moreover, in the elevator equipment concerning this invention, a loop wheel machine is arranged in the location corresponding to the retirement side formed in the top face of a cage.

[0010] Moreover, in the elevator equipment concerning this invention, from an inferior surface of tongue, it projects caudad, is prepared, and the loop wheel machine which has the driving motor arranged in the clearance between the edge of a cage and the wall of a hoistway is equipped.

[0011] Moreover, in the elevator equipment concerning this invention, it is pivoted in the head-lining inferior-surface-of-tongue location of a hoistway by the vertical-axis line, and the deflector wheel which stretches the skyline between a drive sheave and a turn block in the direction in alignment with the internal surface of a hoistway is formed.

[0012] Moreover, in the elevator equipment concerning this invention, a drive sheave is arranged in the upper part of a loop wheel machine, and the side face of a drive sheave makes the head-lining inferior surface of tongue of a hoistway meet, and is installed.

[0013] Moreover, in the elevator equipment concerning this invention, in level plane of projection, some loop wheel machines [at least] carry out a polymerization to a cage, and it is arranged.

[0014]

[Embodiment of the Invention] Gestalt 1. drawing 1 of operation - drawing 4 are drawings showing an example of the gestalt of implementation of this invention, and the front view and drawing 2 which show drawing 1 notionally are a perspective view corresponding to [corresponding to the important section crossing top view of drawing 1 in the side elevation of drawing 1 , and drawing 3] drawing 3 in drawing 4 . In drawing, it is the cage with which 1 goes up and down a hoistway and 2 goes up and down the predetermined path of a hoistway 1, and an entrance 15 and the upper beam 16 are formed, and a head-lining top face descends from upper beam 16 top face, and the retirement side 17 is formed.

[0015] 3 is arranged in the location corresponding to the upper part of the side face of the cage 2 which has been arranged at the 1 side in the horizontal plane in a hoistway 1 and which it hangs, and ***** and 18 are loop wheel machines, and is distant from an entrance 15, i.e., the location corresponding to the retirement side 17 of a cage 2, the head-lining inferior-surface-of-tongue location of a hoistway 1 is equipped, and the drive sheave 6 ****(ed) through the vertical-axis line is formed. The first block of a cage by which 7 was prepared in the 1 side of the lower part of a cage 2, and 8 are the second block of a cage formed in the side besides the lower part of a cage 2.

[0016] 9 hangs, it was prepared in the upper part of ***** 3, and hangs, and in level plane of projection, it is arranged in the wall of a hoistway 1, and the opening between cages 2, and it is a cage side turn block and they are arranged [a ***** block and 10 are pivoted in the upper part of a hoistway 1 through a horizontal-axis line, and] in the location corresponding to second block of cage 8.

[0017] 11 hangs, and in level plane of projection, it is arranged in the wall of a hoistway 1, and the opening between cages 2, and it is a ***** side turn block and it is arranged [it is pivoted in the upper part of a hoistway 1 through a horizontal-axis line, is hung, and] in the location corresponding to ***** block 9. 19 is prepared in the base of a hoistway 1 and is a cage 2 and a shock absorber which hung and has been arranged respectively corresponding to ***** 3.

[0018] 12 is connected with the upper part of a hoistway 1 by the first rope stops 13 which are skylines and by which the end has been arranged in the hoistway 1 upper part corresponding to the first block 7 of a cage, and descends by them. It is wrapped around the first block 7 of a cage, and the second block 8 of a cage, go up, and it is wrapped around the cage side turn block 10, and are stretched horizontally, and it is wrapped around the drive sheave 6, hang, and it is wrapped around the ***** side turn block 11. It descends, and it hangs, and it is wrapped around the ***** block 9, goes up, and the other end is connected with the upper part of a hoistway 1 by the second rope stops 14 which hung and have been arranged in the hoistway 1 upper part corresponding to the ***** block 9.

[0019] In the elevator equipment constituted as mentioned above, a loop wheel machine 18 is energized and the drive sheave 6 rotates, and through a skyline 12, it reaches cage 2, and hangs, and ***** 3 goes up and down to an opposite direction mutually. Moreover, a loop wheel machine 4 is arranged in the upper part in a hoistway 1, and the machine room prepared in independent is omitted. Thereby, the tooth space for elevator equipments in a building is reduced.

[0020] Moreover, the upper limit section of a hoistway 1 is equipped with a loop wheel machine 18, and the lower limit of a loop wheel machine 18 is arranged rather than the lower limit of the turn blocks 10 and 11 in an upper part location. Moreover, it is prepared in the location corresponding to the upper part of the side face of a cage 2 in which the loop wheel machine 18 separated from the entrance 15, i.e., the location corresponding to the retirement side 17 of a cage 2. Furthermore, it reaches cage side turn block 10, and hangs, and the ***** side turn block 11 is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1.

[0021] And while the drive sheave 6 is formed in the loop wheel machine 18 bottom, a skyline 1 is horizontally stretched to the drive sheave 6. For this reason, the hoistway 1 formed in the floor height of the highest floor (not shown) in a building considerable the bottom at height can be equipped with a loop wheel machine 18, and a skyline 12 can be stretched.

[0022] Therefore, since the head-lining inferior surface of tongue of a hoistway 1 can be made to approach a cage 2, it is not necessary to make the head-lining inferior surface of tongue of a hoistway 1 higher than the floor height of the highest floor in a building, and the building expenses required for the installation tooth space of elevator equipment can be reduced. Moreover, since the height of a building can be made low with such an operation, the fault which spoils neighboring right to sunshine is cancelable.

[0023] Moreover, as shown in drawing 1 etc., the drive sheave 6 is arranged in the upper part of a loop wheel machine 18, and a side face is made to meet and it is installed in the head-lining inferior surface of tongue of a hoistway 1. Therefore, the operation stated to the lower part of a loop wheel machine 18 below compared with the configuration which has arranged the drive sheave 6 can be acquired. That is, although illustration besides the upper beam 16 is omitted to the head-lining top of a cage 2, i.e., the upper part of a cage 2, various kinds of devices are prepared in it.

[0024] For this reason, it is necessary to make it the skyline 12 wrapped around the drive sheave 6 after the cage 2 had arrived at the maximum rise location not hit a cage 2 up device. Therefore, the maximum rise location of the cage 2 in the condition of having avoided the body of a loop wheel machine 18 can be made higher than the case where the drive sheave 6 has been arranged in the loop wheel machine 18 lower part, by arranging the drive sheave 6 in the loop wheel machine 18 upper part. By this, the tooth space in the hoistway 1 upper-limit section can be used effectively, and the construction expense of a hoistway 1 can be reduced.

[0025] Moreover, as shown in drawing 1 etc., in level plane of projection, some loop wheel machines [at least] 1 carry out a polymerization to a cage 2, and it is arranged. For this reason, the tooth space in the level plane of projection of a hoistway 1 can be used effectively, and the construction expense of a hoistway 1 can be reduced.

[0026] Gestalt 2. drawing 5 of operation - drawing 8 are drawings showing an example of the gestalt of other operations of this invention, and the front view and drawing 6 which show drawing 5 notionally are a perspective view corresponding to [corresponding to the important section crossing top view of drawing 5 in the side elevation of drawing 5 , and drawing 7] drawing 7 in drawing 8 . In drawing, drawing 1 - above-mentioned drawing 4 , and an above-mentioned same sign show a considerable part.

[0027] The location corresponding to the upper part of the side face of the cage 2 which 20 is a loop wheel machine and is distant from an entrance 15, Namely, while the drive sheave 6 with which has been arranged in the location corresponding to the retirement side 17 of a cage 2, and the head-lining inferior-surface-of-tongue location of a hoistway 1 was equipped and which was ****(ed) through the vertical-axis line is formed From an inferior surface of tongue, a driving motor 21 projects caudad, is formed, and this driving motor 21 is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1.

[0028] Also in the elevator equipment constituted as mentioned above, the upper limit section of a hoistway 1 is equipped with a loop wheel machine 20, and the lower limit of a loop wheel machine 20 is arranged rather than the lower limit of the turn blocks 10 and 11 in an upper part location. Moreover, although a driving motor 21 protrudes caudad from the inferior surface of tongue of a loop wheel machine 20, it is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1. Furthermore, it is prepared in the location corresponding to the upper part of the side face of a cage 2 in which the loop wheel machine 20 separated from the entrance 15, i.e., the location corresponding to the retirement side 17 of a cage 2.

[0029] Moreover, it reaches cage side turn block 10, and hangs, and the ***** side turn block 11 is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1. Therefore, although detailed explanation is

omitted, also in the gestalt of operation of drawing 5 - drawing 8 , the same operation as the gestalt of operation of drawing 1 - drawing 4 is acquired.

[0030] Gestalt 3. drawing 9 of operation - drawing 11 are also drawings showing an example of the gestalt of other operations of this invention, and drawing 9 is a perspective view corresponding to [corresponding to the important section crossing top view of drawing 9 in the front view shown notionally and drawing 10] drawing 10 in drawing 11 . By drawing 1 - above-mentioned drawing 4 , and an above-mentioned same sign showing a considerable part in drawing, 22 is a skyline, an end is connected with the lower part by the side of the anti-entrance 15 of a cage 2, goes up, and it is wrapped around the cage side turn block 10, is stretched horizontally, it is wrapped around the drive sheave 6, hangs, is wrapped around the ***** side turn block 11, descends and hangs, and connects with the upper part of ***** 3.

[0031] Also in the elevator equipment constituted as mentioned above, the upper limit section of a hoistway 1 is equipped with a loop wheel machine 18, and the lower limit of this is arranged rather than the lower limit of the turn blocks 10 and 11 in an upper part location. Moreover, it is prepared in the location corresponding to the upper part of the side face of a cage 2 in which the loop wheel machine 18 separated from the entrance 15, i.e., the location corresponding to the retirement side 17 of a cage 2. Furthermore, it reaches cage side turn block 10, and hangs, and the ***** side turn block 11 is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1. Therefore, although detailed explanation is omitted, also in the gestalt of operation of drawing 9 - drawing 11 , the same operation as the gestalt of operation of drawing 1 - drawing 4 is acquired.

[0032] Gestalt 4. drawing 12 of operation - drawing 14 are also drawings showing an example of the gestalt of other operations of this invention, and drawing 12 is a perspective view corresponding to [corresponding to the important section crossing top view of drawing 12 in the front view shown notionally and drawing 13] drawing 13 in drawing 14 . In drawing, drawing 1 - above-mentioned drawing 4 , and an above-mentioned same sign show a considerable part, and it is a deflector wheel, and 23 is prepared in the head-lining inferior-surface-of-tongue location of a hoistway 1 by the vertical-axis line, and stretches the skyline 12 between the drive sheave 6 and the cage side turn block 10 in the direction in alignment with the internal surface of a hoistway 1.

[0033] Also in the elevator equipment constituted as mentioned above, the upper limit section of a hoistway 1 is equipped with a loop wheel machine 18, and the lower limit of this is arranged rather than the lower limit of the turn blocks 10 and 11 in an upper part location. Moreover, it is prepared in the location corresponding to the upper part of the side face of a cage 2 in which the loop wheel machine 18 separated from the entrance 15, i.e., the location corresponding to the retirement side 17 of a cage 2. Furthermore, it reaches cage side turn block 10, and hangs, and the ***** side turn block 11 is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1.

[0034] Therefore, although detailed explanation is omitted, also in the gestalt of operation of drawing 12 - drawing 14 , the same operation as the gestalt of operation of drawing 1 - drawing 4 is acquired. Moreover, in the gestalt of operation of drawing 12 - drawing 14 , since it is stretched in the direction in which the skyline 12 between the drive sheave 6 and the cage side turn block 10 meets the internal surface of a hoistway 1 with a deflector wheel 23, the side face of the cage side turn block 10 can be arranged to the internal surface of a hoistway 1, and parallel. For this reason, the clearance width of face of the edge of a cage 2 and the wall of a hoistway 1 can be reduced, and the tooth space for elevator equipments in a building can be reduced further.

[0035] Gestalt 5. drawing 15 of operation - drawing 17 are also drawings showing an example of the gestalt of other operations of this invention, and drawing 15 is a perspective view corresponding to [corresponding to the important section crossing top view of drawing 15 in the front view shown notionally and drawing 16] drawing 16 in drawing 17 . In drawing, drawing 12 - above-mentioned drawing 14 , and an above-mentioned same sign show a considerable part, 24 hangs, and it is ***** and it is prepared in the clearance between the rim section linked to the entrance 15 of a cage 1, and the internal surface of a hoistway 1.

[0036] Also in the elevator equipment constituted as mentioned above, the upper limit section of a hoistway 1 is equipped with a loop wheel machine 18, and the lower limit of this is arranged rather than the lower limit of the turn blocks 10 and 11 in an upper part location. Moreover, it is prepared in the location corresponding to the upper part of the side face of a cage 2 in which the loop wheel machine 18 separated from the entrance 15, i.e., the location corresponding to the retirement side 17 of a cage 2. Furthermore, it reaches cage side turn block 10, and hangs, and the ***** side turn block 11 is arranged in the clearance between the edge of a cage 2, and the wall of a hoistway 1.

[0037] Moreover, since the skyline 12 between the drive sheave 6 and the cage side turn block 10 is stretched in the direction in alignment with the internal surface of a hoistway 1 by the deflector wheel 23, the side face of the cage side turn block 10 can be arranged to the internal surface of a hoistway 1, and parallel. Therefore, although detailed explanation is omitted, also in the gestalt of operation of drawing 15 - drawing 17 , the same operation as the gestalt of

operation of drawing 12 - drawing 14 is acquired.

[0038]

[Effect of the Invention] The cage which an entrance is established in the side face by the side of one, and goes up and down the predetermined path of a hoistway as this invention was explained above, And hang, and ***** is alike, respectively, and it is corresponded and prepared. it has been arranged in the wall of a hoistway, and the opening between cages -- it hangs and pivots in ***** and the upper limit section of a hoistway through a horizontal-axis line -- having -- a cage -- The turn block arranged in the wall of a hoistway, and the opening between cages in level plane of projection, The skyline by which the side else hung the cage, the lifting and holding of the ***** were carried out, and it has been arranged in a hoistway, and was wrapped around the turn block, and the 1 side converted horizontally and was stretched a cage slippage side and from the vertical [hang and] by the side of ***** approach, While the upper limit section of a hoistway is equipped and a lower limit is arranged rather than the lower limit of a turn block in an upper part location, the loop wheel machine with which the mutual skyline of a turn block was wrapped around the drive sheave ****(ed) through the vertical-axis line is formed.

[0039] the upper limit section of a hoistway is equipped with a loop wheel machine by this, and a lower limit arranges in an upper part location rather than the lower limit of a turn block by it -- having -- moreover, a cage side turn block -- and it hangs and a ***** side turn block is arranged in the clearance between the edge of a cage, and the wall of a hoistway. For this reason, the hoistway formed in the floor height of the highest floor in a building considerable the bottom at height can be equipped with a loop wheel machine, and a skyline can be stretched. Therefore, it is not necessary to make the head-lining inferior surface of tongue of a hoistway higher than the floor height of the highest floor in a building, and is effective in reducing the building expenses required for the installation tooth space of elevator equipment.

[0040] Moreover, as it was explained as this invention above, a loop wheel machine is arranged in the location corresponding to the retirement side formed in the top face of a cage.

[0041] While the upper limit section of a hoistway is equipped with a loop wheel machine by this and a lower limit is arranged rather than the lower limit of a turn block in an upper part location, a loop wheel machine is arranged in the location corresponding to the retirement side formed in the top face of a cage. moreover, a cage side turn block -- and it hangs and a ***** side turn block is arranged in the clearance between the edge of a cage, and the wall of a hoistway. For this reason, the hoistway formed in the floor height of the highest floor in a building considerable the bottom at height can be equipped with a loop wheel machine, and a skyline can be stretched. Therefore, the tooth space in the upper hoistway upper part of a cage can be used much more effectively, and it is not necessary to make the head-lining inferior surface of tongue of a hoistway higher than the floor height of the highest floor in a building, and is effective in reducing the building expenses required for the installation tooth space of elevator equipment.

[0042] Moreover, as explained above, from an inferior surface of tongue, it projects caudad, and this invention is prepared, and forms the loop wheel machine which has the driving motor arranged in the clearance between the edge of a cage, and the wall of a hoistway.

[0043] The upper limit section of a hoistway is equipped with a loop wheel machine by this, and a lower limit is arranged rather than the lower limit of a turn block in an upper part location, and the driving motor which projected caudad and was formed from the inferior surface of tongue of a loop wheel machine is arranged in the clearance between the edge of a cage, and the wall of a hoistway. moreover, a cage side turn block -- and it hangs and a ***** side turn block is arranged in the clearance between the edge of a cage, and the wall of a hoistway. For this reason, the hoistway formed in the floor height of the highest floor in a building considerable the bottom at height can be equipped with a loop wheel machine, and a skyline can be stretched. Therefore, it is not necessary to make the head-lining inferior surface of tongue of a hoistway higher than the floor height of the highest floor in a building, and is effective in reducing the building expenses required for the installation tooth space of elevator equipment.

[0044] Moreover, as explained above, this invention is pivoted in the head-lining inferior-surface-of-tongue location of a hoistway by the vertical-axis line, and forms the deflector wheel which stretches the skyline between a drive sheave and a turn block in the direction in alignment with the internal surface of a hoistway.

[0045] the upper limit section of a hoistway is equipped with a loop wheel machine by this, and a lower limit arranges in an upper part location rather than the lower limit of a turn block by it -- having -- moreover, a cage side turn block -- and it hangs and a ***** side turn block is arranged in the clearance between the edge of a cage, and the wall of a hoistway. For this reason, the hoistway formed in the floor height of the highest floor in a building considerable the bottom at height can be equipped with a loop wheel machine, and a skyline can be stretched. Therefore, it is not necessary to make the head-lining inferior surface of tongue of a hoistway higher than the floor height of the highest floor in a building, and is effective in reducing the building expenses required for the installation tooth space of elevator

equipment.

[0046] Moreover, since the skyline between a drive sheave and a turn block is stretched in the direction in alignment with the internal surface of a hoistway by the deflector wheel, the side face of a turn block can be arranged to the internal surface of a hoistway, and parallel. For this reason, the clearance width of face of the edge of a cage and the wall of a hoistway is reducible. Therefore, the tooth space for elevator equipments in a building can be reduced further, and it is effective in reducing the building expenses required for the installation tooth space of elevator equipment.

[0047] Moreover, as explained above, this invention arranges a drive sheave in the upper part of a loop wheel machine, makes a side face meet the head-lining inferior surface of tongue of a hoistway, and installs it.

[0048] the upper limit section of a hoistway is equipped with a loop wheel machine by this, and a lower limit arranges in an upper part location rather than the lower limit of a turn block by it -- having -- moreover, a cage side turn block -- and it hangs and a ***** side turn block is arranged in the clearance between the edge of a cage, and the wall of a hoistway. For this reason, the hoistway formed in the floor height of the highest floor in a building considerable the bottom at height can be equipped with a loop wheel machine, and a skyline can be stretched. Therefore, it is not necessary to make the head-lining inferior surface of tongue of a hoistway higher than the floor height of the highest floor in a building, and is effective in reducing the building expenses required for the installation tooth space of elevator equipment. Moreover, since a drive sheave is arranged in the loop wheel machine upper part, the maximum rise location of the cage in the condition of having avoided the body of a loop wheel machine can be made high. For this reason, the tooth space in the hoistway upper limit section can be used effectively, and it is effective in reducing the construction expense of a hoistway.

[0049] Moreover, as explained above, in level plane of projection, this invention carries out the polymerization of some loop wheel machines [at least] to a cage, and arranges it.

[0050] the upper limit section of a hoistway is equipped with a loop wheel machine by this, and a lower limit arranges in an upper part location rather than the lower limit of a turn block by it -- having -- moreover, a cage side turn block -- and it hangs and a ***** side turn block is arranged in the clearance between the edge of a cage, and the wall of a hoistway. For this reason, the hoistway formed in the floor height of the highest floor in a building considerable the bottom at height can be equipped with a loop wheel machine, and a skyline can be stretched. Therefore, it is not necessary to make the head-lining inferior surface of tongue of a hoistway higher than the floor height of the highest floor in a building, and is effective in reducing the building expenses required for the installation tooth space of elevator equipment. Moreover, in level plane of projection, since some loop wheel machines [at least] carry out a polymerization to a cage and it is arranged, the tooth space in the level plane of projection of a hoistway can be used effectively, and it is effective in reducing the construction expense of a hoistway.

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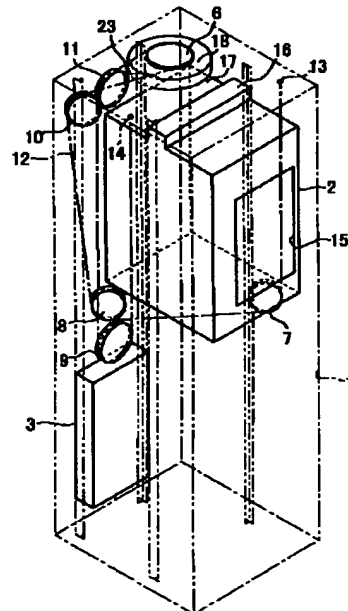
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(54) 【発明の名称】 エレベーター装置

(57) 【要約】

【課題】 昇降路に巻上機を内蔵し、かつ建物における最上階の階高に対応した高さの昇降路内に設置できるエレベーター装置を得る。

【解決手段】 かご2寄り側及びつり合おもり3寄り側における主索12の張設方向を鉛直方向から水平方向に転向する転向滑車10、11を、かご2の縁部と昇降路1の内壁との隙間内に配置する。また、鉛直軸線を介して枢持した駆動綱車6を有する巻上機18を昇降路1の上端部に装着して下端を転向滑車10、11の下端よりも上方位置に配置する。これにより、建物における最上階の階高に相当した高さの昇降路1に巻上機18を装着し、かつ主索12を張設することができ、最上階の階高相当の昇降路1にエレベーターを設置でき、設置スペースに要する建築費を節減する。



1 : 昇降路
2 : かご
3 : つり合おもり
6 : 駆動綱車
10 : かご側転向滑車
11 : つり合おもり側転向滑車
12 : 主索
14 : 出入口
15 : 引込口
16 : 巻上機

【特許請求の範囲】

【請求項1】 一側の側面に出入口が設けられて昇降路の所定経路を昇降するかごと、上記昇降路の内壁及び上記かごの間の空隙に配置されたつり合おもりと、上記昇降路の上端部に水平軸線を介して枢着されて上記かご及びつり合おもりのそれぞれに対応して設けられ、水平投影面において上記空隙内に配置された転向滑車と、一側が上記かごを他側は上記つり合おもりを吊持して上記昇降路内に配置され、上記転向滑車に巻掛けられて上記かご寄り側及びつり合おもり寄り側における鉛直方向から

水平方向に転向して張設された主索と、上記昇降路の上端部に装着されて下端が上記転向滑車の下端よりも上方位置に配置されると共に、鉛直軸線を介して枢持された駆動綱車に上記転向滑車の相互間の上記主索が巻掛けられた巻上機とを備えたエレベーター装置。

【請求項2】 巻上機を、かごの上面に形成された引込面に対応した位置に配置したことを特徴とする請求項1記載のエレベーター装置。

【請求項3】 巻上機を、上記巻上機の下面から下方に突出して設けられて、かごの縁部と昇降路の内壁との隙間に配置された駆動電動機を有するものとしたことを特徴とする請求項1及び請求項2のいずれか一つに記載のエレベーター装置。

【請求項4】 昇降路の天井下面位置に鉛直軸線によって枢着されて、駆動綱車と転向滑車の間の主索を上記昇降路の内壁面に沿う方向に張設するそらせ車を備えたことを特徴とする請求項1、請求項2及び請求項3のいずれか一つに記載のエレベーター装置。

【請求項5】 駆動綱車を、昇降路の天井下面に側面を対面させて巻上機の上部に設置したことを特徴とする請求項1、請求項2、請求項3及び請求項4のいずれか一つに記載のエレベーター装置。

【請求項6】 巻上機の水平投影面における少なくとも一部を、かごと重合して配置したことを特徴とする請求項1、請求項2、請求項3、請求項4及び請求項5のいずれか一つに記載のエレベーター装置。

【発明の詳細な説明】

【0001】

【発明の属する技術分野】この発明は、かご及びつり合おもりを連結した主索を駆動する巻上機が昇降路内に設置されたエレベーター装置に関する。

【0002】

【従来の技術】図18及び図19は、例えば特開平10-139321号公報に示された従来のエレベーター装置を示す図で、図18は概念的に示す斜視図、図19は図18の要部横断平面図である。図において、1は昇降路、2は昇降路1の所定経路を昇降するかご、3は昇降路1内の水平面における一側に配置されたつり合おもり、4は巻上機で、昇降路1上部に設けられた支持用部材5によって天井下面に配置され、鉛直軸線を介して枢

持された駆動綱車6が設けられている。

【0003】7はかご2の下部の一側に設けられたかご第一滑車、8はかご2の下部の他側に設けられたかご第二滑車、9はつり合おもり3の上部に設けられたつり合おもり滑車、10は昇降路1の上部に水平軸線を介して枢着されてかご第二滑車8対応位置に配置されたかご側転向滑車、11は昇降路1の上部に水平軸線を介して枢着されてつり合おもり滑車9対応位置に配置されたつり合おもり側転向滑車である。なお、かご側転向滑車10、つり合おもり側転向滑車11は、水平投影面において、ともにその一部が、かご2と重なっている。

【0004】12は主索で、一端がかご第一滑車7に対応して昇降路1の天井に配置された第一綱止め具13によって昇降路1の上部に連結されて下降して、かご第一滑車7及びかご第二滑車8に巻掛けられて上昇し、かご側転向滑車10に巻掛けられて水平方向に張設され駆動綱車6に巻掛けられてつり合おもり側転向滑車11に巻掛けられ、下降してつり合おもり滑車9に巻掛けられて上昇して他端はつり合おもり滑車9に対応して昇降路1の天井に配置された第二綱止め具14によって昇降路1の上部に連結されている。

【0005】従来のエレベーター装置は上記のように構成され、巻上機4が付勢されて駆動綱車6が回転して主索12を介してかご2及びつり合おもり3が互いに反対方向に昇降する。また、巻上機4を昇降路1内の上部に配置して、独立的に設けられる機械室を省き、建物におけるエレベーター装置用のスペースを節減するようになっている。

【0006】

【発明が解決しようとする課題】上記のような従来のエレベーター装置において、昇降路1上部に設けられた支持用部材5によって巻上機4が昇降路1の天井下面に配置され、また主索12がかご2の中央部上方を通過して張設される。このため、通常建物における最上階の階高よりも昇降路1の天井下面を高くすることが必要になり、エレベーター装置の設置のために建築費が高むという問題点があった。

【0007】この発明は、かかる問題点を解消するためになされたものであり、昇降路に巻上機を内蔵し、かつ建物における最上階の階高に対応した高さの昇降路に設置できるエレベーター装置を得ることを目的とする。

【0008】

【課題を解決するための手段】この発明に係るエレベーター装置においては、一側の側面に出入口が設けられて昇降路の所定経路を昇降するかごと、昇降路の内壁及びかごの間の空隙に配置されたつり合おもりと、昇降路の上端部に水平軸線を介して枢着されてかご及びつり合おもりのそれぞれに対応して設けられ、水平投影面において昇降路の内壁及びかごの間の空隙内に配置された転向滑車と、一側がかごを他側はつり合おもりを吊持して昇

降路内に配置され、転向滑車に巻掛けられてかご寄り側及びつり合おもり寄り側における鉛直方向から水平方向に転向して張設された主索と、昇降路の上端部に装着されて下端が転向滑車の下端よりも上方位置に配置されると共に、鉛直軸線を介して枢持された駆動綱車に転向滑車の相互間の主索が巻掛けられた巻上機とが設けられる。

【0009】また、この発明に係るエレベーター装置においては、かごの上面に形成された引退面に対応した位置に巻上機が配置される。

【0010】また、この発明に係るエレベーター装置においては、下面から下方に突出して設けられて、かごの縁部と昇降路の内壁との隙間内に配置された駆動電動機を有する巻上機が装備される。

【0011】また、この発明に係るエレベーター装置においては、昇降路の天井下面位置に鉛直軸線によって枢着されて、駆動綱車と転向滑車の間の主索を昇降路の内壁面に沿う方向に張設するそらせ車が設けられる。

【0012】また、この発明に係るエレベーター装置においては、巻上機の上に駆動綱車を配置して、駆動綱車の側面が昇降路の天井下面に対面させて設置される。

【0013】また、この発明に係るエレベーター装置においては、水平投影面において巻上機の少なくとも一部がかごと重合して配置される。

【0014】

【発明の実施の形態】実施の形態1. 図1～図4は、この発明の実施の形態の一例を示す図で、図1は概念的に示す正面図、図2は図1の側面図、図3は図1の要部横断平面図、図4は図3に対応した斜視図である。図において、1は昇降路、2は昇降路1の所定経路を昇降する

かごで、出入口15及び上梁16が設けられ、また天井上面が上梁16上面から下降して引退面17が形成されている。

【0015】3は昇降路1内の水平面における一侧に配置されたつり合おもり、18は巻上機で、出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に配置されて昇降路1の天井下面位置に装着され、鉛直軸線を介して枢持された駆動綱車6が設けられている。7はかご2の下部の一侧に設けられたかご第一滑車、8はかご2の下部の他側に設けられたかご第二滑車である。

【0016】9はつり合おもり3の上部に設けられたつり合おもり滑車、10はかご側転向滑車で、水平投影面において昇降路1の内壁及びかご2の間の空隙内に配置されて、昇降路1の上部に水平軸線を介して枢着されてかご第二滑車8対応位置に配置されている。

【0017】11はつり合おもり側転向滑車で、水平投影面において昇降路1の内壁及びかご2の間の空隙内に配置されて、昇降路1の上部に水平軸線を介して枢着されてつり合おもり滑車9対応位置に配置されている。1

9は昇降路1の底面に設けられてかご2及びつり合おもり3にそれぞれ対応して配置された緩衝器である。

【0018】12は主索で、一端がかご第一滑車7に対応して昇降路1上部に配置された第一綱止め具13によって昇降路1の上部に連結されて下降して、かご第一滑車7及びかご第二滑車8に巻掛けられて上昇し、かご側転向滑車10に巻掛けられて水平方向に張設され駆動綱車6に巻掛けられてつり合おもり側転向滑車11に巻掛けられ、下降してつり合おもり滑車9に巻掛けられて上昇して、他端はつり合おもり滑車9に対応して昇降路1上部に配置された第二綱止め具14によって昇降路1の上部に連結されている。

【0019】上記のように構成されたエレベーター装置において、巻上機18が付勢されて駆動綱車6が回転して主索12を介してかご2及びつり合おもり3が互いに反対方向に昇降する。また、巻上機4を昇降路1内の上部に配置して、独立的に設けられる機械室が省略されている。これにより、建物におけるエレベーター装置用のスペースが節減される。

20 【0020】また、昇降路1の上端部に巻上機18が装着されて巻上機18の下端が転向滑車10、11の下端よりも上方位置に配置される。また、巻上機18が出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に設けられる。さらに、かご側転向滑車10及びつり合おもり側転向滑車11が、かご2の縁部と昇降路1の内壁との隙間内に配置される。

【0021】そして、巻上機18の上側に駆動綱車6が設けられると共に、主索1が駆動綱車6に対して水平方向に張設される。このため、建物における最上階(図示しない)の階高に相当した高さに形成された昇降路1に巻上機18を装着し、また主索12を張設することができる。

【0022】したがって、昇降路1の天井下面をかご2に接近させることができるので、建物における最上階の階高よりも昇降路1の天井下面を高くする必要がなく、エレベーター装置の設置スペースのために要する建築費を節減することができる。また、このような作用と共に建物の高さを低くすることができるので、近隣の日照権を損なう不具合を解消することができる。

【0023】また、図1等示すように巻上機18の上部に駆動綱車6が配置されて、昇降路1の天井下面に側面を対面させて設置される。したがって、巻上機18の下部に駆動綱車6を配置した構成に比べて次に述べる作用を得ることができる。すなわち、かご2の天井上、すなわちかご2の上部には上梁16の他、図示が省略してあるが各種の機器が設けられる。

【0024】このため、かご2が最上昇位置に到達した状態で駆動綱車6に巻掛けられた主索12が、かご2上部機器に当たらないようにする必要がある。したがっ

て、巻上機18上部に駆動綱車6を配置することにより、巻上機18の本体を回避した状態でのかご2の最上昇位置を、巻上機18下部に駆動綱車6を配置した場合よりも高くすることができる。これによって、昇降路1上端部におけるスペースを有効利用することができ、昇降路1の構築費を節減することができる。

【0025】また、図1等に示すように水平投影面において、巻上機1の少なくとも一部がかご2と重合して配置される。このため、昇降路1の水平投影面におけるスペースを有効利用することができ、昇降路1の構築費を節減することができる。

【0026】実施の形態2. 図5～図8は、この発明の他の実施の形態の一例を示す図であり、図5は概念的に示す正面図、図6は図5の側面図、図7は図5の要部横断平面図、図8は図7に対応した斜視図である。図において、前述の図1～図4と同符号は相当部分を示す。

【0027】20は巻上機で、出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に配置されて昇降路1の天井下面位置に装着され、鉛直軸線を介して枢持された駆動綱車6が設けられると共に、駆動電動機21が下面から下方に突出して設けられて、この駆動電動機21がかご2の縁部と昇降路1の内壁との隙間内に配置されている。

【0028】上記のように構成されたエレベーター装置においても、昇降路1の上端部に巻上機20が装着されて巻上機20の下端が転向滑車10、11の下端よりも上方位置に配置される。また、駆動電動機21が巻上機20の下面から下方に突設されるものの、かご2の縁部と昇降路1の内壁との隙間内に配置される。さらに、巻上機20が出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に設けられる。

【0029】また、かご側転向滑車10及びつり合おもり側転向滑車11が、かご2の縁部と昇降路1の内壁との隙間内に配置される。したがって、詳細な説明を省略するが図5～図8の実施の形態においても図1～図4の実施の形態と同様な作用が得られる。

【0030】実施の形態3. 図9～図11も、この発明の他の実施の形態の一例を示す図であり、図9は概念的に示す正面図、図10は図9の要部横断平面図、図11は図10に対応した斜視図である。図において、前述の図1～図4と同符号は相当部分を示し、22は主索で、一端がかご2の反出入口15側の下部に連結されて上昇して、かご側転向滑車10に巻掛けられて水平方向に張設され駆動綱車6に巻掛けられてつり合おもり側転向滑車11に巻掛けられ、下降してつり合おもり3の上部に連結されている。

【0031】上記のように構成されたエレベーター装置においても、昇降路1の上端部に巻上機18が装着されてこれの下端が転向滑車10、11の下端よりも上方位

置に配置される。また、巻上機18が出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に設けられる。さらに、かご側転向滑車10及びつり合おもり側転向滑車11が、かご2の縁部と昇降路1の内壁との隙間内に配置される。したがって、詳細な説明を省略するが図9～図11の実施の形態においても図1～図4の実施の形態と同様な作用が得られる。

【0032】実施の形態4. 図12～図14も、この発明の他の実施の形態の一例を示す図であり、図12は概念的に示す正面図、図13は図12の要部横断平面図、図14は図13に対応した斜視図である。図において、前述の図1～図4と同符号は相当部分を示し、23はそらせ車で、鉛直軸線によって昇降路1の天井下面位置に設けられ駆動綱車6とかご側転向滑車10の間の主索12を昇降路1の内壁面に沿う方向に張設する。

【0033】上記のように構成されたエレベーター装置においても、昇降路1の上端部に巻上機18が装着されてこれの下端が転向滑車10、11の下端よりも上方位置に配置される。また、巻上機18が出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に設けられる。さらに、かご側転向滑車10及びつり合おもり側転向滑車11が、かご2の縁部と昇降路1の内壁との隙間内に配置される。

【0034】したがって、詳細な説明を省略するが図12～図14の実施の形態においても図1～図4の実施の形態と同様な作用が得られる。また、図12～図14の実施の形態において、そらせ車23によって駆動綱車6とかご側転向滑車10の間の主索12が昇降路1の内壁面に沿う方向に張設されるので、かご側転向滑車10の側面を昇降路1の内壁面と平行に配置することができる。このため、かご2の縁部と昇降路1の内壁との隙間幅を縮小することができ、建物におけるエレベーター装置用のスペースを一層節減することができる。

【0035】実施の形態5. 図15～図17も、この発明の他の実施の形態の一例を示す図であり、図15は概念的に示す正面図、図16は図15の要部横断平面図、図17は図16に対応した斜視図である。図において、前述の図12～図14と同符号は相当部分を示し、24はつり合おもりで、かご1の出入口15に接続した外縁部と昇降路1の内壁面との隙間内に設けられている。

【0036】上記のように構成されたエレベーター装置においても、昇降路1の上端部に巻上機18が装着されてこれの下端が転向滑車10、11の下端よりも上方位置に配置される。また、巻上機18が出入口15から離れたかご2の側面の上方対応位置、すなわちかご2の引退面17に対応した位置に設けられる。さらに、かご側転向滑車10及びつり合おもり側転向滑車11が、かご2の縁部と昇降路1の内壁との隙間内に配置される。

【0037】また、そらせ車23によって駆動綱車6と

かご側転向滑車10の間の主索12が昇降路1の内壁面に沿う方向に張設されるので、かご側転向滑車10の側面を昇降路1の内壁面と平行に配置することができる。したがって、詳細な説明を省略するが図15～図17の実施の形態においても図12～図14の実施の形態と同様な作用が得られる。

【0038】

【発明の効果】この発明は以上説明したように、一側の側面に入出口が設けられて昇降路の所定経路を昇降するかごと、昇降路の内壁及びかごの間の空隙に配置された10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 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2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 26

路上端部におけるスペースを有効利用することができ、昇降路の構築費を節減する効果がある。

【0049】また、この発明は以上説明したように、水平投影面において巻上機の少なくとも一部をかごと重合して配置したものである。

【0050】これによって、昇降路の上端部に巻上機が装着されて下端が転向滑車の下端よりも上方位置に配置され、またかご側転向滑車及びつり合おもり側転向滑車が、かごの縁部と昇降路の内壁との隙間内に配置される。このため、建物における最上階の階高に相当した高さに形成された昇降路に巻上機を装着し、かつ主索を張設することができる。したがって、建物における最上階の階高よりも昇降路の天井下面を高くする必要がなく、エレベーター装置の設置スペースのために要する建築費を節減する効果がある。また、水平投影面において、巻上機の少なくとも一部がかごと重合して配置されるので、昇降路の水平投影面におけるスペースを有効利用することができ、昇降路の構築費を節減する効果がある。

【図面の簡単な説明】

【図1】 この発明の実施の形態1を示す概念的正面図。

【図2】 図1の側面図。

【図3】 図1の要部横断平面図。

【図4】 図3に対応した斜視図。

【図5】 この発明の実施の形態2を示す概念的正面図。

図。

【図6】 図5の側面図。

【図7】 図5の要部横断平面図。

【図8】 図5に対応した斜視図。

【図9】 この発明の実施の形態3を示す概念的正面図。

【図10】 図9の要部横断平面図。

【図11】 図10に対応した斜視図。

【図12】 この発明の実施の形態4を示す概念的正面図。

【図13】 図12の要部横断平面図。

【図14】 図13に対応した斜視図。

【図15】 この発明の実施の形態5を示す概念的正面図。

【図16】 図15の要部横断平面図。

【図17】 図16に対応した斜視図。

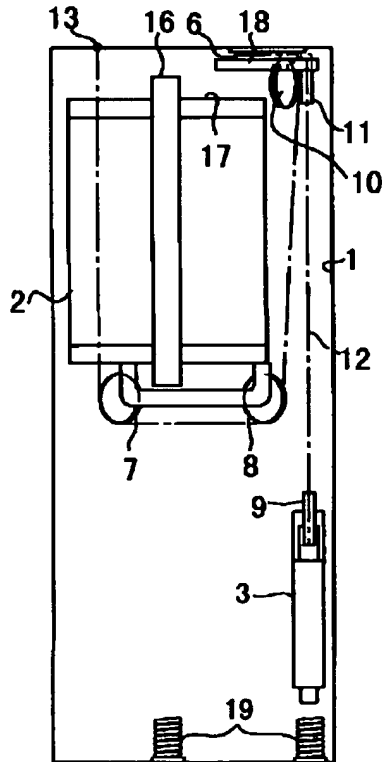
【図18】 従来のエレベーター装置を示す概念的斜視図。

【図19】 図18の要部横断平面図。

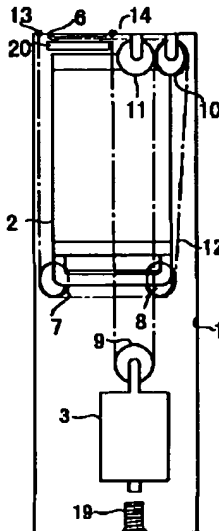
【符号の説明】

1 昇降路、2 かご、3 つり合おもり、6 駆動綱車、10 かご側転向滑車、11 つり合おもり側転向滑車、12 主索、15 出入口、17 引退面、18 巻上機、20 巻上機、21 駆動電動機、22 主索、23 そらせ車、24 つり合おもり。

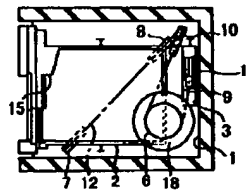
【図1】



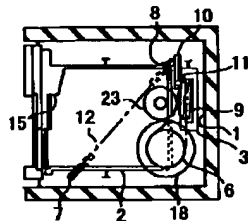
【図2】



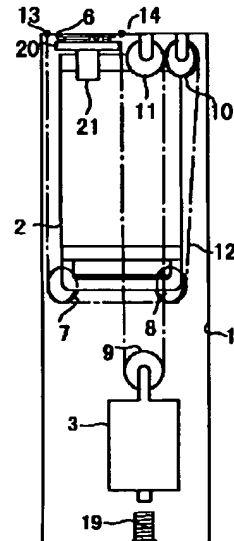
【図3】



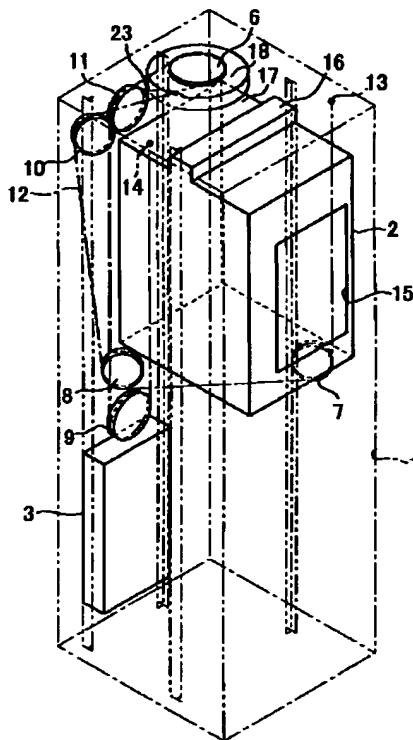
【図13】



【図6】

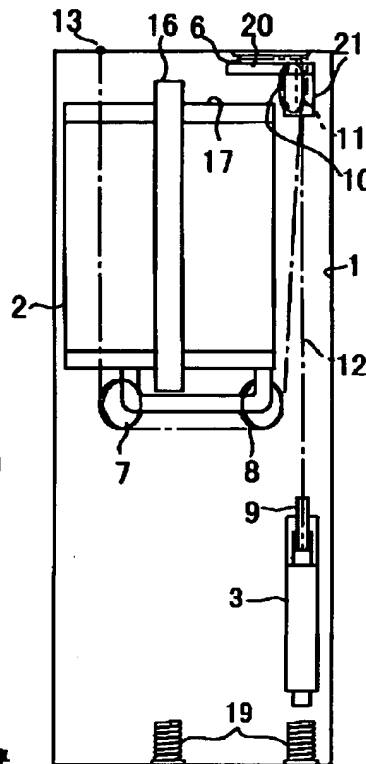


【図4】

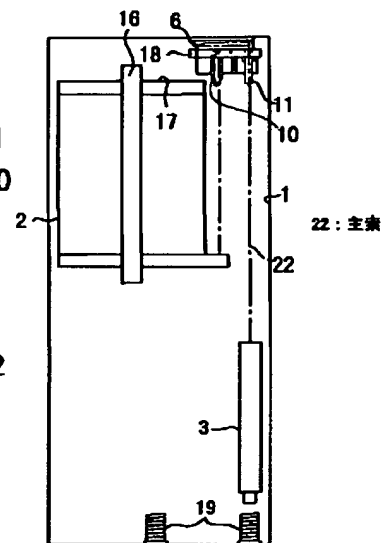


- 1:昇降路
2:かご
3:つり合おもり
6:駆動鋼索
10:かご制動向滑車
11:つり合おもり制動向滑車
12:主索
15:出入口
17:引込面
18:巻上機

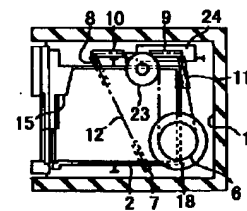
【図5】



【図9】

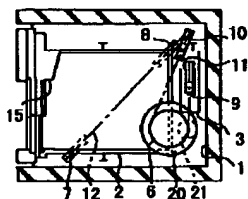


【図16】

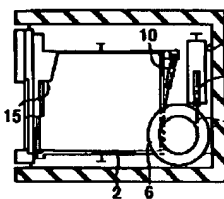


【図12】

【図7】

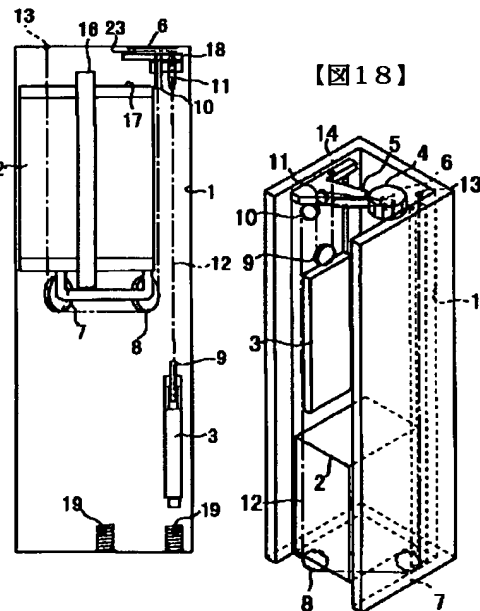


【図10】

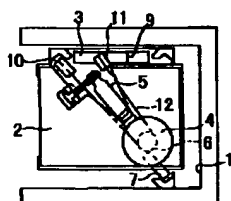


- 20:巻上機
21:駆動電動機

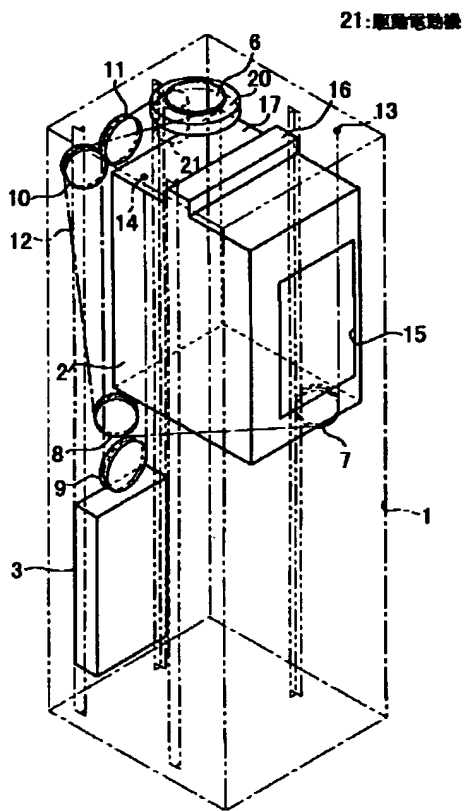
【図18】



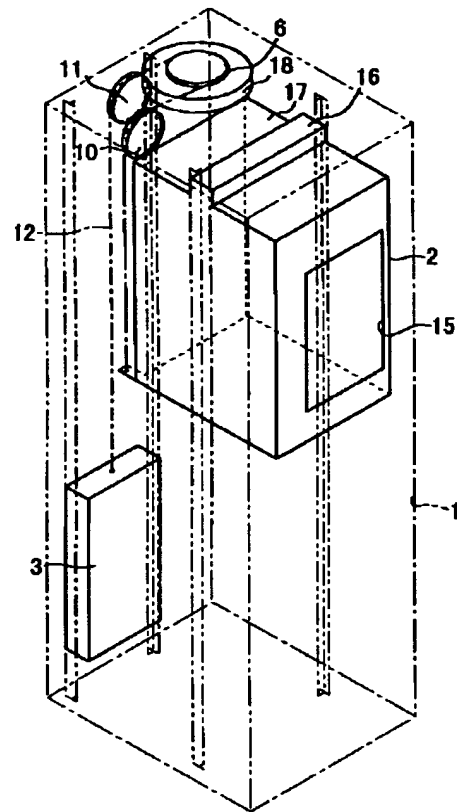
【図19】



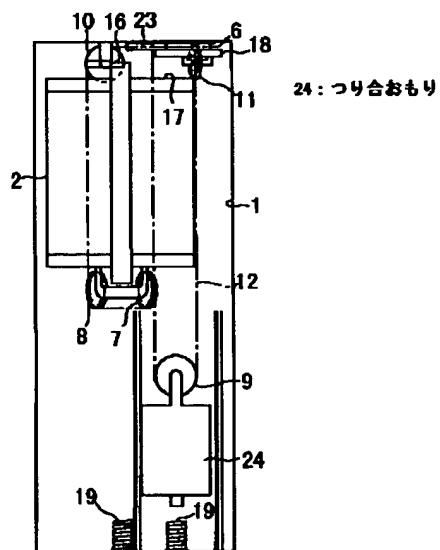
【図8】



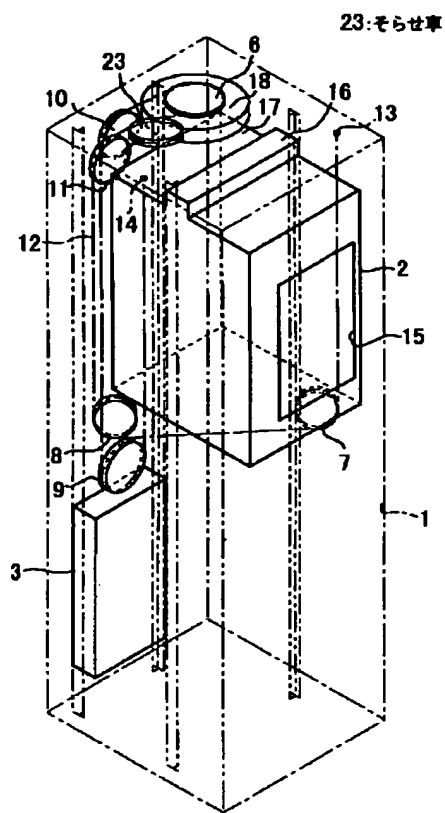
【図11】



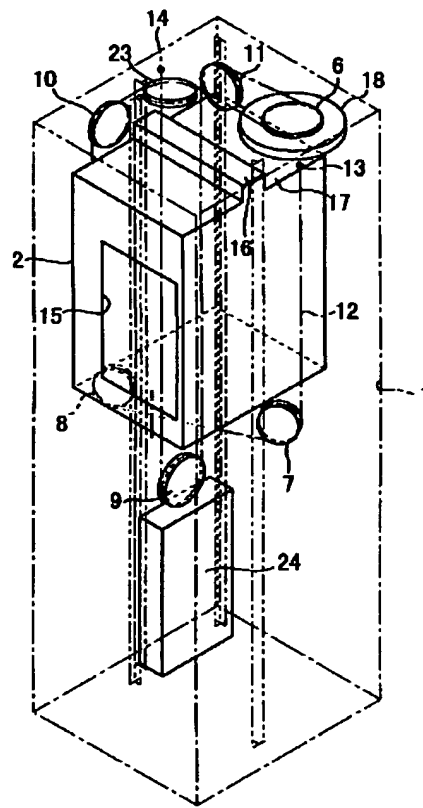
【図15】



【図14】



【図17】



フロントページの続き

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